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VOLTAGE CONTROLLED SPIN TRANSPORT CHANNEL

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Abstract

A spin transport channel includes a dielectric layer contacting a conductive layer. The dielectric layer includes at least one of a tantalum oxide, hafnium oxide, titanium oxide, and nickel oxide. An intermediate spin layer contacts the dielectric layer. The intermediate spin layer includes at least one of copper and silver. The conductive layer is more electrochemically inert than the intermediate spin layer. A polarizer layer contacts the intermediate spin layer. The polarizer layer includes one of a nickel-iron based material, iron, and cobalt based material. The conductive layer and intermediate layer are disposed on opposite sides of the dielectric layer. The dielectric layer and the polarizer layer are disposed on opposite sides of the intermediate spin layer. The intermediate spin layer is arranged to form a conducting path through the dielectric layer configured to transport a plurality of electrons. Each of the plurality of electrons maintains a polarized electron spin.

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References

- 12-006Application

Status of Availability

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